REMARKS

The Application has been carefully reviewed in light of the Office Action dated October 1, 2002 (Paper No. 9). Claims 1 to 19 and 24 to 38 are in the application, of which Claims 1, 11, 24 and 33 to 38 are the independent claims. Claims 1, 4, 7, 11, 13, 16, 24, 26, 29 and 33 to 38 have been amended herein. Reconsideration and further examination are respectfully requested.

By the Office Action, Claims 4 and 7 have been rejected under 35 U.S.C. § 112, second paragraph. Applicants have reviewed the claims in light of the rejection and have amended the claims as deemed appropriate. Reconsideration and withdrawal of the rejection are respectfully requested.

Turning to the art rejections, Claims 1, 3, 10 to 11, 19, 24 and 32 to 38 have been rejected under 35 U.S.C. § 103(a) over Stancil in view of the IEEE Computer Society's article entitled "IEEE Standard 1394 - IEEE Standard For A High Performance Serial Bus" (hereinafter referred to as the "1394 Specification"), Claims 2, 4 to 7, 9, 12, 13 to 16, 18, 20 to 23, 25 to 29 and 31 are rejected under 35 U.S.C. § 103(a) over Stancil in view of the 1394 Specification and the Wetzel article entitled "IEEE 1394 - The Cable Connection to Complete the Digital Revolution" (hereinafter referred to as "Wetzel"), and Claims 8, 17 and 30 are rejected under 35 U.S.C. § 103(a) over Stancil, the IEEE Specification, Wetzel and U.S. Patent 5,161,857 (Mayercheck). Applicants traverse the rejections raised by the Office Action for at least the following reasons.

The present invention relates to a system for transmitting and receiving data over a IEEE 1394 standard bus using the same broadcast channel.

Conventionally, the IEEE 1394 standard bus (1394 bus) provides for isochronous transmission of data packets, which are sent and received every 125 microseconds in correspondence to one cycle. A maximum of 64 isochronous packets can be sent over the bus per cycle. As a result, any device that uses the IEEE 1394 standard for isochronous transmission of data, is assigned an isochronous channel, ranging in value from 0 to 63. The channel is assigned to a specific device until it is released by that device.

In the conventional 1394 approach, a problem arises when two devices attempt to use the same channel. This problem occurs not only when more than 64 devices are attempting to access the 1394 bus, but can also arise even if only two or more digital video cameras are being used on the same 1394 bus. That is, many different digital video cameras are designed to transmit over a single preset channel number, or "broadcast channel" for transmitting digital video data packets over the 1394 bus. However, because the IEEE 1394 standard does not allow more than one device to use the same isochronous channel at one time, only one of the digital video cameras is permitted isochronous bandwidth and use of channel 63 to perform transmission of isochronous data on the bus. As a result of this conflict, two or more digital video cameras connected to the same 1394 bus cannot be used in a bi-directional video conferencing configuration, because at the sending and receiving sides, only one camera will be able to send data per bus.

Therefore, in any configuration where multiple digital video cameras (which have adopted the "broadcast channel" concept standard of U.S. Patent No. 5,535,208) are attempting to transmit isochronous data on a 1394 bus, only one camera will be able to send isochronous data and all others will be locked out from sending isochronous data on the bus.

Heretofore, it has not been possible to send/receive data over the same 1394 bus when more than one device is attempting to use a single broadcast channel, for example, channel 63, of the 1394 bus. Accordingly, it is desirable to have a system that permits two or more devices to transmit or receive data using the same channel over a 1394 bus, so that transmitting data over a local data bus or a local area network by more than one device using the same broadcast channel becomes possible.

CLAIMS 1, 24, 33, 35, 36 AND 38:

Turning to the particular language of Claim 1, a system is provided for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising a controller interfaced to an internal bus, a first interface connected to the bus, and a second interface connected to the bus, wherein the controller is configured for 1) receiving data from the bus, attaching an identification (ID) header to the received data, and retransmitting the received data with the ID header onto the bus; and 2) receiving data with the ID header attached thereto, interpreting the ID header to identify which of the first or second interfaces should receive the data, and transmitting the data over the bus to the identified interface, wherein the ID header is other than a 1394 header formatted in IEEE 1394 standard and contains information about the data.

Stancil is not seen to teach or suggest the above-described features of Claim 1. Most particularly, Stancil is not seen to teach or suggest using an ID header other than a 1394 header, the ID header containing information about the data.

Rather, Stancil is seen to describe a hardware configuration in which hardware devices can be slid in and out of device bays easily in a manner similar to the laptop computer bays that accept a battery, floppy disk drive, CD-ROM drive, etc. Each device bay has a 1394 port and a USB port. In this regard, the problem intended to be solved by Stancil is the need for a secondary 1394 PHY host controller bus driver and associated USB device bay controller, which occurs when a primary 1394 PHY host controller is incorporated on the motherboard and the chassis has multiple device bays. To address this problem, Stancil describes mounting a plurality of 1394 ports on the riser card, which are coupled to a single 1394 PHY host controller and a single bus driver.

Nothing in Stancil is seen to teach or to suggest attaching an ID header to data received from an internal bus, or removing an ID header from data received from the internal bus, where the ID header is other than a 1394 header and the ID header includes information about the data.

In responding to Applicant's prior remarks, the Office Action states, at page 6, that Applicants are trying to claim that the devices are running on the same broadcast channel on one bus, when there are actually two separate 1394 buses. The Office Action then cites Figure 2, structures 2 and 6 of the present Application.

Applicants have amended Claim 1 to further clarify that the bus recited in Claim 1 is an internal bus to distinguish it from a 1394 bus. In other words, Applicants submit that since more than one 1394 interface is used in the present invention, the ID header facilitates identification of an intended recipient.

In addition, the Office Action seem to be drawing a correspondence, in the Official Notice at page 3 of the Office Action, between an internal header attached to every

data packet transmitted on an internal bus and the ID header of Claim 1. However, such an internal header is seen to consist of a destination address only, and is not seen to include information about the data in the packet.

Accordingly, Stancil is not seen to teach or to suggest attaching an ID header to data received from an internal bus, or removing an ID header from data received from the internal bus, where the ID header is other than a 1394 header and the ID header includes information about the data.

The 1394 Specification is not seen to remedy the deficiencies of Stancil. More particularly and as indicated in the Application, the conventional 1394 approach using the IEEE 1394 standard is to require that each device use a different broadcast channel. Further and with respect to the citation in the Office Action to the header quadlets, these are 1394 header quadlets. Nothing in Figure 6-2 of the 1394 Specification is seen to describe use of headers, which are other than 1394 headers, or the use of a header that includes information about the data in the packet. Accordingly, the 1394 Specification is not seen to teach or suggest the features of Claim 1.

Wetzel and Mayercheck have been carefully reviewed and are not seen to remedy the deficiencies noted with respect to Stancil and the 1394 Specification as discussed above.

Therefore, for at least the foregoing reasons, Claim 1 is believed to be in condition for allowance. Further, Applicants submit that Claims 24, 33, 35, 36 and 38 are believed to be in condition for allowance for at least the same reasons.

CLAIMS 11, 34 AND 37:

Claim 11 is directed to a system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising a controller interfaced to an internal bus, a first interface connected to the bus, and a second interface connected to the bus, wherein the controller is configured for receiving data over the bus and routing the data to either the first or second interface based on the received data using an identification (ID) header other than a 1394 header, the ID header containing information about the data.

Applicants have amended Claim 11 to clarify that the bus is an internal bus and that an ID header is used to route data received over the bus, the ID header is other than a 1394 header and contains information about the data.

As discussed above, neither Stancil, nor the 1394 Specification, either alone or in any permissible combination, is seen to teach or to suggest an ID header other than a 1394 header that includes information about the data. Stancil and the 1394 are therefore not seen to teach or to suggest a controller configured to receive data and to route the data to either a first or second interface based on the received data using an ID header, which is other than a 1394 header and contains information about the data in the packet.

Accordingly, Claim 11 is believed to be in condition for allowance. Further, Claims 34 and 37 are believed to be in condition for allowance for at least the same reasons.

The remaining claims are each dependent from the independent claims discussed above and are therefore believed patentable for the same reasons. Because each

dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Twice Amended) A system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising:

a controller interfaced to an internal bus;

a first interface connected to the bus; and

a second interface connected to the bus,

wherein the controller is configured for 1) receiving data from the bus, attaching an identification (ID) header to the received data, and retransmitting the received data with the ID header onto the bus; and 2) receiving data with the ID header attached thereto, interpreting the ID header to identify which of the first or second interfaces should receive the data, and transmitting the data over the bus to the identified interface,

wherein the ID header is other than a 1394 header formatted in IEEE 1394 standard and contains information about the data.

4. (Twice Amended) A system according to Claim 2, wherein the digital video data output from either the first or second video camera includes 1394 header information, data, and header check and data check information, and wherein a [the] link

layer for each respective interface removes the 1394 header and header check and data check information prior to transmitting the data over the bus to the controller.

7. (Twice Amended) A system according to Claim 6, wherein a [the] link layer of the identified interface attaches 1394 header and data information to the data and transmits the data through the physical layer to the identified interface in an isochronous manner and where, in the case the identified interface connects to the first digital video camera, the identified interface outputs the data in the isochronous manner to the first digital video camera and, in the case the identified interface connects to the second digital video camera, the identified interface outputs the data in the isochronous manner to the second digital video camera.

11. (Twice Amended) A system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising:

a controller interfaced to an internal bus;

a first interface connected to the bus; and

a second interface connected to the bus,

wherein the controller is configured for receiving data over the bus and routing the data to either the first or second interface based on the received data using an

identification (ID) header other than a 1394 header, the ID header containing information about the data.

13. (Twice Amended) A system according to Claim 12, wherein the digital video data output from either the first or second video camera includes 1394 header information, data, and header and data check information and wherein a [the] link layer for each respective interface removes the 1394 header and header data check information prior to transmitting the data over the bus to the CPU.

16. (Twice Amended) A system according to Claim 15, wherein a [the] link layer of the identified interface attaches a 1394 header and data information to the data and transmits the data through the physical layer to the identified interface in an isochronous manner and where, in the case the identified interface connects to the first digital video camera, the identified interface outputs the data isochronously to the first digital video camera and, in the case the identified interface connects to the second digital video camera, the identified interface outputs the data isochronously to the second digital video camera.

24. (Twice Amended) A system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising:

a controller interfaced to an internal bus;

a first interface connected to the bus; and

a second interface connected to the bus,

wherein the controller is configured for 1) receiving data from the bus, attaching an identification (ID) header and a subheader to the received data, and retransmitting the received data with the ID header and subheader onto the bus; and 2) receiving data with ID header and subheader attached thereto, interpreting the ID header and subheader to identify which of the first or second interfaces should receive the data and which broadcast channel in the identified interface should receive the data, and transmitting the data over the bus to the identified interface,

wherein the ID header is other than a 1394 header formatted in IEEE 1394 standard and contains information about the data.

26. (Twice Amended) A system according to Claim 25, wherein the digital video data output from either the first or second video camera includes 1394 header information, data, and header check and data check information and wherein a [the] link layer for each respective interface removes the 1394 header and header check and data check information prior to transmitting the data over the bus to the controller.

29. (Twice Amended) A system according to Claim 28, wherein a [the] link layer of the identified interface attaches a 1394 header and data information to the data

and transmits the data through the physical layer to the identified interface in an isochronous manner and where, in the case the identified interface connects to the first digital video camera, the identified interface outputs the data in the isochronous manner to the first digital video camera and, in the case the identified interface connects to the second digital video camera, the identified interface outputs the data in the isochronous manner to the second digital video camera.

33. (Twice Amended) A method for use in a system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, the system having a controller interfaced to an internal bus, a first interface connected to the bus, and a second interface connected to the bus, the method comprising steps of:

receiving data from an internal [the] bus;

attaching an identification (ID) header to the received data;

retransmitting the received data with the ID header onto the bus;

receiving data with the ID header attached thereto;

interpreting the ID header to identify which of the first or second interfaces should receive the data; and

transmitting the data over the bus to the identified interface,

wherein the ID header is other than a 1394 header formatted in IEEE 1394 standard and contains information about the data.

34. (Twice Amended) A method for use in a system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, the system having a controller interfaced to an internal bus, a first interface connected to the bus, and a second interface connected to the bus, the method comprising steps of:

receiving data over an internal [the] bus; and

routing the data to either the first or second interface based on the received data using an identification (ID) header other than a 1394 header, the ID header containing information about the data.

35. (Twice Amended) A method for use in a system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, the system having a controller interfaced to an internal bus, a first interface connected to the bus, and a second interface connected to the bus, the method comprising the steps of:

receiving data from an internal [the] bus;

attaching an identification (ID) header and a subheader to the received data;

retransmitting the received data with the ID header and subheader onto the bus;

receiving data with the ID header and subheader attached thereto;

interpreting the ID header and subheader to identify which of the first or second interfaces should receive the data and which broadcast channel in the identified interface should receive the data; and

transmitting the data over the bus to the identified interface,

wherein the ID header is other than a 1394 header formatted in IEEE 1394 standard and contains information about the data.

36. (Twice Amended) A system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising:

a controlling means interfaced to a communication means;

a first interface means connected to the communication means; and

a second interface means connected to the communication means,

wherein the controlling means is configured for 1) receiving data from the communication means, attaching an identification (ID) header to the received data, and retransmitting the received data with the ID header onto the communication means; and 2) receiving data with the ID header attached thereto, interpreting the ID header to identify which of the first or second interface means should receive the data, and transmitting the data over the communication means to the identified interface means,

wherein the ID header is other than a 1394 header formatted in IEEE 1394 standard and contains information about the data.

37. (Twice Amended) A system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising:

a controlling means interfaced to a communication means;

a first interface means connected to the communication means; and

a second interface means connected to the communication means,

wherein the controlling means is configured for receiving data over the communication means and routing the data to either the first or second interface means based on the received data using an identification (ID) header other than a 1394 header, the ID header containing information about the data.

38. (Twice Amended) A system for transmitting and receiving data packets formatted in IEEE 1394 standard between devices using a same broadcast channel, comprising:

a controlling means interfaced to a communication means;

a first interface means connected to the communication means; and

a second interface means connected to the communication means,

wherein the controlling means is configured for 1) receiving data from the communication means, attaching an identification (ID) header and a subheader to the received data, and retransmitting the received data with the ID header and subheader onto the communication means; and 2) receiving data with the ID header and subheader

attached thereto, interpreting the ID header and subheader to identify which of the first or second interface means should receive the data and which broadcast channel in the identified interface means should receive the data, and transmitting the data over the communication means to the identified interface means,

wherein the ID header is other than a 1394 header formatted in IEEE standard and contains information about the data.

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